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AUTHOR Whittington, L. Alfons
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ABSTRACT

This review of the literature examined a number of specific factors as they relate to the persistence and achievement of persons involved in distance learning. These factors are: (1) media of instruction; (2) instructor contact; (3) locus of control; and (4) certain demographic characteristics such as age, gender, income, and educational level. In preparation for the review, a search of a number of databases, including the Educational Resources Information Center (ERIC), Dissertation Abstracts Online (DAO), and Psychological Abstracts, was undertaken using these descriptors: attrition, dropout or persistence in distance education, achievement and performance in distance education, locus of control, instructor support and delivery model and demographic factors impacting distance education. It is clear from the review that the findings regarding the impact of the various factors on educational outcome are mixed due to inconclusive research findings and the lack of generalizability, a finding attributed to the lack of common definitions. (Contains 92 references.) (Author/SLD)

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Factors Impacting 1

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Factors impacting on the success of distance education students of the University
of the West Indies: A review of the literature

L. Alfons Whittington
University of the West Indies

University of the West Indies
Tertiary Level Institutions Unit
Cave Hill Campus
P.O. Box 64
Bridgetown
BARBADOS

Telephone: (246) 4298237(Home)
Telephone: (246) 417-4513/14(Work)
Fax: (246)438-0456

Abstract

This review of the literature examined a number of specific factors – media of instruction, instructor contact, locus of control, and certain demographic characteristics such as age, gender, income, and educational level – as they relate to the persistence and achievement of persons involved in distance learning. In preparation for the review, a search of a number of databases (Educational Resource Information Centre, ERIC; Dissertation Abstract Online, DAO; and Psychological Abstract) was undertaken using the following descriptors: attrition, dropout, or persistence in distance education; achievement and performance in distance education; locus of control, instructor support and delivery mode; and demographic factors impacting on distance education. It is clear from the review that the findings regarding the impact of the various factors on educational outcome are mixed due to inconclusive research findings and to the lack of generalisability, which has been attributed to the lack of common definitions.

Factors impacting on the success of distance education students of the University
of the West Indies Cave Hill Campus: A review of the literature

A topic to which much attention has been given over the last two decades is that of distance education. Recently, there have been increasing distance-education efforts, a growing body of related literature, and a greater understanding of what is necessary and essential for effective instruction. The phenomenal growth and interest in distance education has caused such institutions as Pennsylvania State University to introduce several distance-education initiatives. For example, Penn State established the American Center for the Study of Distance Education which currently publishes the American Journal of Distance Education and Distance Education Online Symposium (DEOS), an electronically transmitted journal (Hiemstra, 1994).

Since nontraditional students are often unable to participate in the traditional forms of education because of social responsibilities and obligations, distance education may emerge as an important vehicle by which these individuals participate in educational or learning activities. Given the vast amount of literature generated in response to the recent interest and developments in distance education, this review will be restricted to the examination of specific areas: attrition and persistence, instruction media, instructor contact, locus of control,

and demographic characteristics such as age, gender, income, and educational level.

In preparation for this literature review, a search of the following databases was undertaken: Educational Resources Information Center (ERIC), Dissertation Abstracts Online (DAO), Psychological Abstracts, and OSCAR--the University of Southern Mississippi Online System for Computerized Assisted Retrieval. To guide the search of the various databases the researcher utilized the following descriptors: distance education with and without attrition, dropout, or persistence; distance education with adult-student and nontraditional; and locus of control. The computer search produced several hundred abstracts of journal articles, dissertations, and books related to the topic of achievement and persistence of participation in distance education. After carefully reading the abstracts, the researcher selected literature for this review from within these categories: attrition, dropout, or persistence in distance education; achievement and performance in distance education; locus of control, instructor support and delivery mode; and demographic factors impacting on distance learning.

Distance Education: Concept and Historical Review

Concept

Distance education, like other disciplines within education, suffers from a lack of consensus as to terminology and definition, resulting in a plethora of definitions; confusion about the place of distance education within education as a whole; and disagreement about whether it is identical to or different from such areas as correspondence education, nontraditional education, off-campus education, and open learning. This section will examine some of the definitions in the literature and highlight those elements which are essential to any definition of distance education.

Today's distance education grew out of teaching and learning by correspondence. References to what was considered "correspondence education" occurred as early as the 1780s, and to what was justifiably "correspondence education" by the 1830s (Holmberg, 1989). Many considered the term "correspondence education" too narrow, so a number of alternative terms appeared in the United States such as "independent study" and "home study," and in Australia and New Zealand "external degrees."

Since the early 1970s, distance education is the term adopted by the United Kingdom, North America, New Zealand, and other parts of the English-speaking world, as well as by some non-English-speaking countries. Additionally, the term "distance" has been incorporated into the names of the Australian Journal Distance

Education, the Canadian Journal of Distance Education, and the American Journal of Distance Education. In 1982 the term distance education received a degree of formal recognition when the International Council for Correspondence Education (ICCE) changed its name to the International Council for Distance Education (ICDE). This event was followed by the Educational Resource Information Center's (ERIC's) inclusion of the term distance education in its descriptors in 1983 (Verduin & Clark, 1991).

Many terms have been proposed to describe learning which is not based in the classroom or provided face to face. Wedemeyer (1983) states that "five terms are used to include all the types of programs that are non-classroom based: distance education, nontraditional learning, independent study, out-of-school learning, and external studies" (p. 54). Consequently, research reveals as many definitions of non-classroom-based learning or programs as there are terms to describe it (Peters, Dohmen, Moore, & Holmberg, cited in Keegan, 1990).

Of the many definitions of distance education, the following three are considered representative:

1. Distance education covers the various forms of study at all levels where students are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same

premises, but which, nevertheless, benefit from the planning, guidance and tuition of a tutorial organization. (Holmberg, cited in Keegan, 1983, p. 6)

2. Distance teaching/education is a method of imparting knowledge, skills, and attitudes which is rationalized by the application of division of labor and organizational principles as well as by the extensive use of technical media, especially for the purpose of reproducing high-quality teaching material which makes it possible to instruct greater numbers of students simultaneously where they live. It is an industrialized form of teaching and learning. (Peters, cited in Keegan, 1983, p. 6)
3. Distance teaching may be defined as the family of instructional methods in which the teaching behaviors are executed apart from the learning behaviors, including those that in a contiguous situation would be performed in the learner's presence, so that communication between the teacher and the learner must be facilitated by print, electronic, mechanical or other devices. (Moore, cited in Keegan, 1983, p. 6)

Two of the definitions, Holmberg's and Moore's, are descriptive. Peters, however, presents a type of philosophical position of distance education as an industrialized form of teaching and learning. Holmberg's definition emphasizes two elements considered essential: the separation of teacher and learner, and the planning of an educational organization. The separation of teacher and learner is fundamental to all forms of distance education whether they be based in print, audio, video/television, computer, or satellite media. This separation differentiates distance education from all forms of conventional, face-to-face, direct teaching and learning.

In Moore's definition three elements are highlighted: the separation of teaching behaviors and learning behaviors, the use of technical media, and the possibility of two-way communication. Moore's analysis separates teaching into two categories. In face-to-face teaching the instructor prepares apart from the students and teaches in their presence, while in distance education both the preparation and the teaching are done apart from the learner. He stresses that distance teaching must allow the learner to interact with the teacher in an atmosphere of two-way communication. This conception is more comprehensive than Holmberg's idea of distance education, and introduces the notion that the

teaching role may be shared and that different study situations are possible for the learner.

Peters's definition, like the other two, conceptualizes distance education as a form of indirect instruction that uses technical media such as television, print, and computers. However, Peters's analysis diverges from Holmberg's and Moore's and proceeds along a line which leads him to conclude that the structure of distance education is best understood from industrial principles, especially those of productivity and division of labor (Keegan, 1983). This industrialized concept, challenged by some, would radically divide the didactic structure between distance education and conventional face-to-face education.

A synthesis of the definitions reveals some consensus. Keegan (1983) suggests that the following six characteristics are to be regarded as essential for any comprehensive definition of distance education:

1. separation of teacher and learner
2. influence of an educational organization
3. use of technical media
4. provision of two-way communication
5. possibility of occasional seminars
6. participation in the most industrialized form of education. (p. 15)

However, for the purpose of this study distance education is defined as any form of study in which student and teacher or facilitator are separated at times, and some type of technical (teleconferencing & audiotapes) and/or nontechnical (course manual, workbooks, & study guides) media is used to facilitate communication between them.

Historical Review

If correspondence for instructional purposes between a tutor and a pupil is to be considered formal education, then distance education indeed originated in ancient civilization (Verduin & Clark, 1991). However, some authorities (Keegan, 1990; Willis, 1994) on the subject suggest that distance education is only about 100 years old, beginning with the development of university correspondence courses during the 1800s. Not until the early 1930s did electronic technology, beginning with radio, bring a mass quality to learning at a distance. The date of the first public announcement of distance education is in dispute. Battenberg (cited in Verduin & Clark, 1991) describes a 1782 newspaper advertisement for shorthand lessons by mail as the first known reference to distance learning, while Bratt (cited in Verduin & Clark, 1991) cites an 1833 advertisement in a Swedish newspaper which offered postal tuition in composition. However, Isaac Pitman is generally recognized as the first modern distance educator. A phonographer by profession,

he began teaching shorthand by correspondence in Bath, England, in 1840.

Students were instructed to copy brief Bible passages in shorthand and to return them to Pitman for grading, using the new penny post system (Dinsdale, cited in Verduin & Clark, 1991).

Present-day distance education has its roots in early university correspondence and extension programs designed mainly to educate students via paper-based media. The University of London, established in 1836 to conduct examinations and confer degrees, was an important agent in the founding of private correspondence colleges such as Skerry's College and University Correspondence College, which, beginning in the 1800s, prepared individuals to take examinations for postsecondary degrees (Curzon, 1977).

Distance education in America can be traced back to the Society to Encourage Studies at Home, founded in 1873 by Anna Eliot Ticknor, who was the first to award grades to correspondence students (Aggasiz, cited in Verduin & Clark, 1991). American distance learning at the university level began at Illinois Wesleyan University in 1874 (Rumble, 1986).

The Chautauqua movement, a popular society devoted to providing education to all Americans, initiated "the first significant distance education effort in America" (Moore, cited in Verduin & Clark, 1991, p. 15). The society was

founded by, among others, John Vincent, who had developed a home reading circle for adults in 1878. In 1882, William Rainey Harper persuaded Chautauqua administrators to allow him to start a correspondence study program for his residential summer school students. He became the head of the College of Liberal Arts when the Chautauqua became an accredited university. Harper later became the first president of the University of Chicago in 1892, and founded the first university-level correspondence study division in America.

Another distance learning pioneer was Thomas Foster, a Pennsylvania newspaper editor, who began teaching mining methods and safety by correspondence. Foster later founded the International Correspondence School of Scranton, Pennsylvania. After this early period, the teaching of technical and vocational skills at a distance became common in the United States.

Distance Learning in the Caribbean

The Caribbean region is made up of 17 countries stretching from the Bahamas in the north to Trinidad and Tobago (a twin-island state) in the south. The region has a population of approximately 6 million people. With the exception of Jamaica, Trinidad and Tobago, and Guyana, which have natural resources of bauxite, petroleum, and gold respectively, the islands' primary resources are their

people. Most of these countries' economies are based on agriculture and tourism industries which require well-trained work forces.

The major degree-granting institution in the Caribbean is the University of the West Indies (UWI) with campuses in Jamaica, Trinidad, and Barbados. Initially named the University College of the West Indies (UCWI), an affiliate of the University of London (William, cited in Jennings, 1990), it began in 1948 with four campuses: Mona, Jamaica; St. Augustine, Trinidad; Cave Hill, Barbados; and Turkeyen, Guyana. The UCWI did not become a full-fledged university (UWI) until 1962, with seven faculties: agriculture, engineering, humanities, law, medical science and research, sciences and technology, and social sciences. In 1963, Guyana withdrew and established its own university.

In those countries without a campus (non-campus countries or NCCs), and often without a two-year college, the work of the university is performed by the School for Continuing Studies (SCSs). The SCSs are managed by resident tutors who act as liaisons between the university, the government, and the respective communities, and their responsibilities include the development and maintenance of largely adult-education programs appropriate to the needs of the respective territories.

The Caribbean region has a large number of individuals in need of higher and continuing education; however, the high cost of constructing additional educational facilities and the separation of the islands by water constitute barriers that concern both educators and policy makers. Given the economic constraints and financial commitments of the countries financing the university, it is very unlikely that other campuses will be established; thus distance education has become an attractive and feasible alternative. The UWI, in an effort to meet the demand for higher and continuing education with minimal financial and human resources, proposed the use of distance teaching by way of telecommunication (Lalor & Lynch, 1986).

The UWI started experimenting with distance teaching using telecommunications in 1978 with Project Satellite. The five-year pilot project dealt with teaching of the first year of B.Sc. (social sciences), in-service teacher training, health and agriculture courses, and administration.

The University of the West Indies Distance Teaching Experiment (UWIDITE) was instituted in March 1983 with funding for three years by the United States Agency of International Development (USAID). The UWIDITE system consists of a telephone linkup between seven countries: Antigua, Barbados, Dominica, Grenada, Jamaica, Trinidad, and St. Lucia. Each center has a

teleconferencing room equipped with at least six microphones, two loudspeakers, a slow scan television, and a telewriter. In addition, every center has a scrambler which enables discussion of confidential matters such as examinations. The individual sites also have a microcomputer for document transmission.

Distance Education and the Adult (Nontraditional) Student

The role of distance education is critical to the delivery of education to the adult or nontraditional student. This is evident from the need of adults or nontraditional students to receive training or retraining to keep pace with the ever-increasing developments in the workplace and/or technology, while continuing to fulfill their social roles and responsibilities. Since most adult or nontraditional students are unable to engage in full time traditional education, distance education is seen as an attractive alternative. Also, since the late 1980s, the numbers of young resident students have diminished and the numbers of adult or nontraditional students have swelled, resulting in the need for a nontraditional type delivery of the educational package.

The importance of distance education to meeting the educational needs of the nontraditional student is self-evident. However, several issues (such as learner expectations, quality of learning materials, self-directedness, role of instructor, & implications of nontraditional learner characteristics) require consideration if

nontraditional students are to benefit from distance education. Stoffle (1987), investigating teaching behaviors that are important to students taking distance-education courses, found that students cited providing feedback, prompt response, and helpfulness as being most important to them. Comparing this list of needs of adult distance-education students to needs of adolescent learners revealed some interesting contrasts. Clark (1987) found that teachers' knowledge, understanding, and fairness were important to high school students; however, these behaviors appeared much lower on the adult students' list. For example, fairness is important to 78% of the adolescents, while adult students mentioned fairness only nine times out of 388 responses. Also remarkable is the low ranking that "knowledge in field" received on the adult scale. The teens rated it very important 81% of the time, while it comprised only 3% of the adult responses. These findings suggest two significant aspects of distance education for adult learners. First, the quality of the learning materials is probably more critical to the success of the course than the knowledge, education, or skill of the instructor. According to Stoffel (1987), "The text, assignments, and activities carry the load for making the educational experience 'happen' for the distance-education student" (p. 26). A second aspect is that the self-directed adult flourishes on taking control of his or her own learning, rather than relying on a knowledgeable teacher to do the work. Research supports

this theory: Tough (1979) claims that 90% of adults conduct learning projects which they direct themselves; Brookfield (1986) speaks of adult learners' preference for autonomy; and Cross (1982) identifies adult learners' pragmatism and desire to solve problems as catalysts to their learning.

Since adult learners are capable of directing their own learning, distance instructors can best help their students by being available by phone, E-mail, and other types of media to clarify minor problems so the students can quickly proceed with their tasks or assignments (Stoffel, 1987). This guidance, assistance, and support is also supported by Moore (1989), who reports that adult distance-learners expect knowledge or information to be communicated in a way that is congenial to them, and they expect that the knowledge presented will be accompanied by guidance in the study of it. In addition, adult students require substantive responses from their instructors to the work they have submitted. It is also imperative that instructors respond promptly to the students if the educational experience is to be meaningful.

The typical adult distance-learner has certain expectations of his or her instructor and instructional institution. Most adults who enroll in distance-education programs are very task oriented and have definite learning goals clearly in mind (Moore, 1989). Although most adults engage in task-oriented learning,

"there are those," says Moore (1989), "who occasionally enroll for the purposes of social interaction" (p. 8). Houle (1961) found that learners participate in educational activities for specific tasks or goals, social interaction, or the sake of learning.

Persistence in Distance Education

The literature on persistence, especially in higher education, is voluminous. Yet much remains unknown about the nature of the persistence or attrition process. The failure of past research to delineate more clearly the multiple characteristics of persistence can be attributed to two major shortcomings, namely, inadequate attention to definitions as well as to the development of models that seek to explain, not simply describe, the processes that cause individuals to leave institutions of higher learning (Tinto, 1975).

The lack of theoretical models to explain attrition, according to Tinto (1975), is due in part to inadequate attention to definition, often leading researchers to lump together very different forms of leaving behavior under the rubric of dropout. For example, researchers may not distinguish between dropouts who leave because of academic failure and those who voluntarily withdraw, or between permanent dropouts and those who transfer or leave only temporarily. These failures have led to such contradictory findings as to whether ability is

inversely related to dropout, unrelated to dropout, or directly related to dropout (Tinto, 1975).

However, some theories have been advanced to explain the college persistence process (Bean, 1980; Spady, 1970; Tinto, 1975). One theory that provides a more comprehensive theoretical framework on college dropout is Tinto's (1975) "Dropout from higher education: A theoretical synthesis of recent research." Tinto conducted an extensive review of the literature on withdrawal from college and came to two main conclusions: first, it was clear that no single factor explains dropouts and persistence in higher education, and second, it was also clear that research on attrition and persistence would be better conducted by using a theoretical model rather than a descriptive approach. The need for a theoretical model of students' persistence and withdrawal is supported by Kember (1989) and Terenzini and Pascarella (1980). Kember (1989) stated that

The attrition process is a complex one. A theory that could fully explain every aspect of the attrition processes would contain so many constructs that it would become unwieldy if not unmanageable. Such situations call for the use of theoretical models, which are simplified versions of reality that strip away the

minute details to concentrate on factors that are assumed or deduced to be important. (p. 279)

Tinto (1975) extended earlier work by Spady (1970) on the dropout process at postsecondary levels. In his model, Tinto regarded persistence largely as an outcome of the student's academic and social experiences after enrollment. According to the model, the personal characteristics (e.g., high school achievement, family education, race, etc.) that students bring with them to college become integrated into the academic and social systems of the institution. He defined academic integration in terms of scholarly achievement, but he also included the student's involvement with intellectual activities and services offered by the institution. Social integration is indicated by students' participation in the extracurricular life of the campus in addition to the frequency and quality of contacts students have with faculty members. Other things being equal, the higher the level of academic and social integration achieved, the less likely the student is to voluntarily leave the institution.

Since the publication of Tinto's (1975) paper, other researchers (Boyle, 1989; Getzalt et al., 1984; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1977, 1980) have incorporated his longitudinal model into their own studies of persistence in higher education. For the most part, the findings of those studies

confirmed Tinto's expectations that demographic and individual differences were less important in explaining attrition behavior than were measures of academic and social integration.

One aspect of Tinto's model claims that informal student-faculty contact is a significant predictor of college persistence. However, Pascarella and Terenzini (1977) found that not all interactions are of equal importance. Contacts focusing on intellectual or course-related matter contributed the most to persistence in college. In fact, the role of student-faculty interaction is more important than the role of student-peer relationships to the withdrawal or persistence decision (Pascarella & Terenzini, 1980).

Bean (1980), in his attempt to validate Tinto's model, discovered that the process of persistence differed for men and women. Although the most important predictor of persistence for both men and women was institutional commitment, for women the second most important predictor was academic performance in high school. In the case of men, the second most important predictor was academic performance during college.

Pascarella and Chapman (1983) tested Tinto's model in many different settings. In general, their findings are consistent with the model's expectations. With regard to the direct causes of persistence as hypothesized by Tinto (1975),

the researcher found the effect of academic integration on persistence stronger than the effect of social integration for students in commuter colleges. However, in residential colleges, persistence is more affected by social integration than by academic integration (Pascarella & Chapman, 1983). Therefore, Pascarella and Chapman concluded that pattern of influence on persistence varies with types of institutions and types of students.

Although Tinto's model has been used to explain dropout in distance education (Kember, 1989; Sweet, 1986), Kember (1989), Garrison (1987), and Bean and Mezner (1985) expressed reservations about applying Tinto's theory and concepts to other types of education, for example, adult education. The differences in instructional method, the demand for basic research into the needs of distance learners, and the differences in levels of social and intellectual involvement for distance learners all contribute to making Tinto's model inapplicable to distance education (Bean & Mezner, 1985; Garrison, 1987; Kember, 1989).

Responding to Tinto's (1982) suggestion that his model needed to be modified for different situations, Kember (1989) proposed a model of dropout in distance education. He felt that the background variables in Tinto's model needed to be broadened, and he divided the variables into seven categories: (a) learners' characteristics, (b) goal commitment, (c) academic environment, (d) academic

integration, (e) social and work environment, (f) social and work integration, and (g) cost-benefit analysis. Kember felt that there should be frequent reassessment for students who are either in danger of dropping out or at high risk. The recycling loop in the model indicated the changing nature of the variables and components in the model. In a course of studies, a student passes through the loop a number of times. Each time, some variables change, and each time the student encounters the cost-benefit analysis.

Kember illustrated his longitudinal model qualitatively (Kember, 1989) with interview quotations from case studies. He also tested his model quantitatively by administering questionnaires to 1,060 students in a distance-education institution in Hong Kong (Kember et al., 1991). His model included all the major variables in the proposed model (Kember, 1989) except the cost-benefit component. He was able to substantiate the inclusion of most of the variables in his proposed model. Kember et al. (1991) found that 80% of the total variance in students' progress was explained by the constructs of emotional encouragement, external attributions, academic accommodation, academic compatibility, and GPA (grade point average). Kember explained that a large portion of the variances in persistence (defined as a ratio of number of modules failed/number of modules attempted, ranging from 0 for passing all attempted modules to 1 for failing all attempted

modules) arose from the inclusion of GPA in the path model. Therefore, the limitations, reservations, and mixed reviews expressed by the various researchers indicate that there is a need to investigate persistence as it applies specifically to distance education and the nontraditional or adult student.

Boshier (1973), also reacting to Tinto, suggested a model to explain the participation and dropout of adults engaged in education. Briefly, the model asserts that participation and dropout result from an interaction between internal psychological and external environmental variables. More specifically, Boshier hinted that the adult learner's two major concerns are "maintaining inner harmony with himself and with the environment" (p. 259). He also pointed out that similarity both within the participant, and between the participant and his or her educational environment, determines participation or nonparticipation and dropout or persistence in educational activities.

Previous research by Boshier (1977) has established relationships between motive and social variables such as age, educational attainment, and previous participation in adult education. These variables were also shown to be significant determinants in retention of distance learners (Langenbach & Korhonen, 1986).

Factors Impacting On Achievement and Persistence in Distance Education
Demographic Characteristics

Although Woodley and Parlett (1983) cautioned that standard demographic variables will never perfectly predict persistence, many studies have investigated and continue to investigate the effect of an array of demographic variables on academic outcome (e.g., persistence & achievement). Some common demographic variables reported in the literature that will also be investigated in this study include age, gender, marital status, number of dependents, level of education, work status, and income.

Age, according to Beaty (1994), is a significant factor in the completion of courses, especially courses taken through distance teaching. He reported that as age increased, the likelihood of course completion decreased. However, Riddle (1995), investigating the relationship that existed among certain demographic characteristics, grade, and course satisfaction, reported that age had no significant impact on the student's grade and course satisfaction. The importance of age as a predictor of academic outcome or achievement was also supported by findings reported by Chinnanon (1985). Alsagoff (1986) reported that the majority of the distance learners in his study were between the ages of 26 and 30. This finding was similar to that reported by Webb (1990), in the National Extension College (NEC) for ages 25 to 34. One study (Donsky & Judge, 1981) reported that students younger than 23 years of age tended to persist more than students over 23 years of

age, and the highest rate of dropouts occurred among students over 30 years of age.

A number of studies which have investigated the relationship of gender and educational outcome have produced mixed results. Some studies (Abdul-Rahman, 1994; Austin, 1971; Chinnanon, 1985; Giltrow & Duby, 1976) found that gender was important in explaining educational outcome (in terms of achievement & completion or persistence), while others reported that gender did not significantly influence educational outcome (Hobbs, 1993; Price, 1993). Austin (1971) found that women tended to get better grades than men during the freshman year. He reported that nearly half of the women, as compared with only about a third of the men, obtained freshman GPAs (grade point average) of 2.50 or above. In contrast, he found that twice as many men as women (14% vs. 7%) obtained freshman GPAs below 1.50. Similarly, Giltrow and Duby (1976) reported that females were more likely to complete open-learning courses than males.

A few studies investigated the relationship between marital status and academic outcome. Powell, Conway, and Ross (cited in Ross & Powell, 1990) found that marital status was related to academic achievement, indicating that students increased their chances of success by having supportive spouses or partners. Chinnanon (1985) also found that marital status has a significant effect on

educational achievement, particularly in life experience courses. Anderson (1994), investigating the success in distance-education courses and classroom-education courses, reported that marital status was significantly different when comparing the profiles of distance-education students to those of traditional classroom-education students.

Price (1993) found that educational level (i.e., student's level of previous education) was related to student academic outcome and satisfaction. Billings (1987), investigating students in a correspondence Baccalaureate nursing program, found that students with high SAT (Scholastic Aptitude Test) scores and GPAs completed the program. This finding has been supported by Austin (1971), who states, "there is, clearly, a positive relationship between how well a student performs on a test of academic ability . . . and his grade as a college freshman" (p. 7). Chinnanon (1985), however, showed that the number of years out of school had a significant effect on educational achievement. Contrary to the findings of Price (1993), Austin (1971), and Chinnanon (1985), de Freitas and Lynch (1986) suggested that the academic outcome of nontraditional students was neither related to secondary school achievement scores nor to previous participation in a higher-education program. Similar results were found by McLaughlin (1973) and Kennedy and Powell (1976).

In addition to the more common demographic variables discussed above, a few studies have investigated the impact of work status, income, and number of dependents on academic outcome. Price (1993) reported no correlation between work status of students (i.e., whether a student worked more than or less than 30 hours per week) and their academic outcome. However, Ross and Powell (1990) found more males worked full time (i.e., 40 or more hours per week) while studying, and this affected academic performance or outcome. Anderson (1994) found that the number of dependents of distance-education students significantly affected the educational or academic outcome. Alsagoff (1986) indicated that distance education students earned approximately US \$500 and US \$750 per month which was significant, while Chinnanon (1985) found that income had no significant effect on academic outcome.

Instructor Contact or Support

Distance-teaching institutions have many roles. They promote the development of their students as independent learners, develop the ability of their students to handle the teaching materials emanating from the institution, and motivate their students to persist and achieve. The attainment of this goal is effected through the student support services offered by the educational institution, and the selection of instructors is critical. The instructors' role in the attainment of

this goal, according to Holmberg (1981) and Kaye (1981), is attained via connections made through the communication network which reaches out to the student, especially the student learning at a distance. The various types of two-way communication (mail, E-mail, & telephone) between instructor and student (as confirmed by Baath, 1976), are intended to motivate students to attain their goal of persisting with the courses for which they have registered, and to achieve a relatively high cumulative grade point.

Kelly (1963) demonstrated that the personalization of instruction by mail has a positive effect on learner perseverance. It is also reported that telephone tutoring, a popular method of interacting with distance learners, can not only make students feel less isolated but also assist them in overcoming some of the difficulties associated with learning at a distance (Flinck, 1978).

At Athabasca University, a Canadian university dedicated to delivering its programs using distance-learning methods, a project was designed to investigate a variety of feedback models in order to determine their relative usefulness in terms of increasing persistence (Spencer, 1982). Results showed that students preferred courses which included opportunities for telephone contact with their instructors. Furthermore, the telephone version of the course produced higher persistence and completion rates than did the correspondence version.

Analysis of data from the Open Learning Institute in British Columbia indicated a moderate but positive and statistically significant correlation between persistence (determined by the number of assignments submitted) and telephone contact between instructor and student (Scales, 1984). For example, as the number of telephone calls increases by one, the percentage of assignments submitted increased by 3.7%. Therefore, it is possible to conclude that a positive relationship exists between persistence and telephone contact, albeit a modest one. Furthermore, instructor contact or support by some type of two-way communication (telephone, E-mail, & mail) does improve persistence and enhance achievement.

Locus of Control

Locus of control is a construct or variable with major importance in understanding the nature of the learning process in various kinds of learning situations. It measures the degree to which the individual perceives that the reward follows from or is contingent upon his or her own behavior or attributes versus the degree to which he or she feels the reward is controlled by forces outside of oneself and may occur independently of his or her own action (Rotter, 1966). An internal scorer perceives that the personal events are dependent on one's own

behavior, while an external scorer perceives that the events are the results of fate, luck, or powerful others (i.e., beyond one's control).

There are several locus of control scales (Levenson, 1972; Rotter, 1966; Spector, 1988); the best known locus of control scale (Rotter I-E Scale) is the 23-item forced-choice scale developed by Rotter (1966). Although the initial work by Rotter suggested that the scale consisted of one general factor, subsequent factor analyses of the Rotter I-E Scale (Collins, 1974; Gurin, Gurin, Lao, & Beattie, 1969) showed multiple factors. For example, Collins (1974), using 300 college students, found four factors present. He labeled these beliefs: "difficulty" versus "easy" world, "just" versus "unjust" world, "predictable" versus "unpredictable" world, and "politically responsive" versus "unresponsive" world.

Levenson (1972), partly as a result of finding the Rotter I-E Scale to be multidimensional, constructed a 24-item locus of control scale based on a six-point response scale (1 for strong disagreement through 6 for strong agreement). The 24 items are grouped into three separate eight-item scales: internal, chance, and powerful others.

In response to Phares's (1976) call to develop more domain-specific locus of control scales, Spector (1988) recently developed a work locus of control scale. This scale consisted of 16 items to which subjects responded on a six-point scale

similar to Levenson (1972), i.e., 1 for disagree very much through 6 for agree very much.

Several studies, using the Rotter (1966) I-E Scale, investigating the relationship between locus of control and performance, reported mixed findings. Some studies (Broedling, 1975; Hersch & Scheibe, 1967; Majumder, MacDonald, & Greever, 1977) found that internals perform better than externals, while other studies reported no relationship between locus of control and performance (Johnson, Luthans, & Hennessey, 1984; Szilagyi, Sims, & Keller, 1976) or that externals perform better (Brownell, cited in Blau, 1993). One study (Tseng, 1970) found that internals were rated higher than externals by their training instructors. This was attributed to the ambiguity of the supervisory rating definition. However, Dille and Mezack (1991) reported that locus of control was related to success (i.e., completing with a grade of "C" or better), while Alman and Aranbasich (1982) reported that internally controlled adults demonstrated a greater degree of persistence in an adult-education program. Pugliese (1994), investigating the predictive power of loneliness, communication apprehension, communication competence, and locus of control on telecourse withdrawal (i.e., persistence), reported that of the independent variables, locus of control was the strongest predictor of withdrawal. Parker (1994) also reported that locus of control in

conjunction with source of financial assistance were able to predict dropout, the opposite of persistence, with almost 85% accuracy.

In order to enhance the predictiveness of locus of control, Phares (1976) recommended that researchers develop other domain-specific locus of control scales other than the Rotter (1966). Given the general nature of the Rotter scale and the fact that its items cut across different domains (education, work, politics, & life in general), it is considered the best measure of the locus of control construct. It has also proved to be a useful construct in education, and it has obviously been well accepted in the psychological body of literature as important in explaining learning behavior.

Delivery Media of Distance Education

Given the characteristics of distance learners and the separation of the learner and the teacher in distance learning, the delivery or instructional mode of distance education becomes a critical issue. Furthermore, in times of increasing concern about providing the most cost-effective educational programs, priority in the media selection process must be given to what is least costly, least complicated, most accessible, and most capable of producing the desired result. Therefore, this section attempts to discuss some of the instructional or delivery methods.

In the literature, many delivery methods are described. Some of these delivery methods include print, audio, video, audiographics, and computers. Print materials come in a number of formats including textbooks, study guides, workbooks, course syllabuses, and case studies. The audio medium uses the audio cassettes to deliver instruction. Because of their portability, student pacing, and low cost, distance-education institutions have found that audio cassettes are a cost-effective method of providing instruction and support learning which is capable of addressing the desired needs of distance learners.

In addition to audio cassettes, there are audiographics which combine technologies for voice communication with those that allow image or data transmissions. While voice remains the primary communication medium, audiographic technologies transmit pictorial or electronic data using regular telephone lines. Audiographic devices, such as the facsimile machine (fax), electronic bulletin board, still video technology, and personal computer (PC), reduce the amount of time required to send printed materials by mail or courier and facilitate the simultaneous transmission of voice and data on a single telephone line. Since audiographic devices add a dimension of interaction, they provide more immediate feedback (for a detailed discussion of the print, audio, and audiographics media see Misanchuk, 1994).

"Visual experience is primary in learning to understand and respond to the environment; visual information is the oldest record of human history" (Donis, cited in Oliver, 1991, p. 165). The amalgam of visual images and sound in one highly sensory medium makes video a versatile and appealing medium among the array of instructional technologies available to distance educators. The instructional application of video in distance education falls into four general categories: preproduced video, televised instruction, interactive video, and videoconferencing (for a more detailed description see Gunawardena, cited in Oliver, 1994).

The use of personal computers for the delivery of educational instructions, particularly distance learning, has increased tremendously. Schieman and Jones (1993) listed computer-based instruction as one among the myriad of important distance-education approaches, while Eastmond (1992) described various "electronic university degree programs, dedicated to learning solely through computer network technologies" (p. 155). Hiemstra (1994) stated that computer-mediated conferencing is "a promising approach for nontraditional distance learning" (p. 11). This popularity of computer-based instruction and computer-mediated conferencing is not surprising. Knowles (1983) predicted that by the end

of the century most educational programs and resources will be delivered electronically.

Roberts (cited in Hiemstra, 1994) preferred the use of computers in educational instruction over other forms of technology: "The computer is active. Unlike television which can only present to the student, the computer can only work with the student. It is individualized, interactive, and diagnostic and through networking and conferencing the computer is out reaching" (p. 13).

Additionally, there is tremendous potential for learners to access considerable information electronically (Heerman, 1988). As Brockett and Hiemstra (1991) stated, "having access to such a system can add immensely to the power an educator has in meeting the needs of adult learners. Self-directed learners may, in fact, benefit the most from access to increased information and improved retrieval systems . . ." (p. 165).

Robinson (1992) stated that students' abilities to access information according to their own time schedules was an important factor which assisted them in the timely completion of assignments. However, it should be noted that researchers have discovered that some students experience difficulties in using computer-based instruction and computer-mediated conferencing media. For example, Manninen (cited in Hiemstra, 1994) reported that class differences affect

some computer-mediated conferencing participants, with middle-class learners accessing computer networks easier than lower-class learners. It is worth noting, however, that although computer-based instruction and computer-mediated conferencing are still in the beginning stages as distance-education media, they give opportunities for individualizing instruction, for offering education in various locations, and perhaps most important, for providing learning opportunities to people who ordinarily would have difficulty participating (Hiemstra, 1994).

Changing demographic characteristics (e.g., increasing numbers of adults & part-time students) among student populations have made television a viable medium for the delivery of college curricula (Arnall, cited in Johnson & Silvernail, 1994). With the influx into higher and continuing education of adult learners (who have responsibilities of family and work, place-bound, & who usually lack extra time), the need to make continuing and higher education more accessible through the use of television is of great importance. Responding to this need, the Community College of Maine has significantly increased access to educational offerings in isolated areas of the state; the college's interactive television (ITV) offerings now reach into communities that previously had no formal contact with higher education (Johnson & Silvernail, 1994).

The impact of ITV instruction on student achievement has received considerable attention from researchers. For example, some recent studies have been conducted to investigate student achievement where grade is used as a measure. On the basis of the results of these studies (Creswell, 1986; Johnson & Silvernail, 1989; Whittington, 1987), it appears that ITV students' achievement equals that of those students who receive instruction in the traditional, face-to-face classroom setting. Johnson and Silvernail (1994) also noted that ITV has implications for the persistence of students in distance-education programs. Furthermore, students who have access to higher and continuing education through ITV systems and who are satisfied with their learning experience will be more likely to continue their studies.

There are some adjustments that must be made by both instructor and student. The first adjustment that must be made is to the technology itself. Another major adjustment involves the lack of typical visual cues one is accustomed to receiving from students through subtle body language and facial expressions (West, 1994). Missing cues also affect the relationships among students at two different sites. For example, a student at one location can be presenting an opinion and simultaneously receiving positive visual feedback from students in his or her class in the form of approving nods and other affirming gestures. The other class,

not being able to discern the support and approval of the first class, may react with a dissenting group opinion, tacitly arrived at by means of disapproving facial expressions and other silent forms of nonverbal communication.

Despite some of the aforementioned shortcomings of ITV Video for distance learning, West (1994) states that he “really enjoys it” (p. 73). More importantly, it provides a means of educational advancement for those who could not otherwise participate in both undergraduate and graduate education.

Summary

It is clear from the review of the literature that numerous variables (demographic, socioeconomic, & dispositional) impact on the academic outcome (achievement & persistence) of individuals participating in educational activities in general, and distance education in particular. Also evident from the review is the fact that the findings regarding the impact of the various variables on educational outcome are mixed. This has been attributed to several factors. For example, the inconclusive research findings of persistence and/or dropout expressed by the various researchers, and the lack of generalizability of the findings have been attributed to such things as the lack of common definitions and terms used, and the differences in types of institutions in which the studies were conducted. This lack of generalizability and institution-specificity of persistence research findings have

been a concern to some investigators (Kember, 1989) of persistence as it applies to other forms of education (e.g., distance education). Since most of the research on persistence was conducted on college students, postulates and theories that are advanced may not be easily applicable to distance education because the exact nature of the variables to be measured depends on the types of distance education in operation (Kember, 1989).

Other shortcomings are the use of a single-year sample (usually freshman year), the use of small samples, and the limited time span of the studies (usually either one semester or one year). Measurement of the criterion variables also differed. Some researchers looked at the actual behavior of persistence and attrition (Munro, 1981; Pascarella & Chapman, 1983), while others looked at completion of assignments as a measure of persistence or rate of progress (Sweet, 1986; Kember et al., 1991).

Similarly, the lack of common definitions of demographic, socioeconomic, and dispositional variables examined in the many studies reviewed have contributed to mixed and inconclusive results. In addition to the problem of definitions, the conflicting and inconsistent findings reported in the many studies have been attributed to location of the study, size of the sample, and the population from which the sample was taken, to mention a few. However, with all

the limitations, inconsistencies, and inconclusive findings, the studies are still useful in illuminating the relationships that exist among the myriad variables and educational outcomes.

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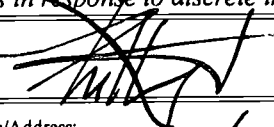
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